

NETTS Project/Demonstration Summary

NCBC-56-00

Title: PetroFLAG

Lead PI/Affiliation: Dexsil Corporation

Co-PI's/Affiliations: EPA NERL
TestraTech

Date/Duration:

Initiated – 12/99

Completed - 9/01



Introduction: This demonstration was conducted as part of the EPA Superfund Innovative Technology Evaluation (SITE) Monitoring and Measurement Technology (MMT) Program at Port Hueneme in June 2000. The purpose of the demonstration is to evaluate innovative field measurement devices for TPH in soil in order to determine whether they are more efficient or cost-effective than conventional off-site laboratory measurement methods. Although the off-site laboratory measurement methods currently being used meet most TPH measurement requirements, new field measurement devices may be faster and easier to operate and less expensive.

Abstract: These innovative technologies are demonstrated under field conditions, and the results are compiled, evaluated, published, and disseminated by the EPA ORD. Field analysis was conducted at the NETTS, Port Hueneme CA. With soil core, samples taken at Port Hueneme, Kelley AFB, and a Petroleum Site in Indiana. The PetroFLAG test kit manufactured by Dexsil is based on emulsion turbidimetry. The device uses a proprietary, nonpolar organic solvent mixture that is composed of alcohol's, primarily methanol, for extraction of petroleum hydrocarbons from soil samples. The device also uses a proprietary developer solution that is polar in nature and that acts as the emulsifying agent. The developer solution also contains water and surfactants that stabilize the emulsion.

The PetroFLAG test kit can measure a variety of petroleum products. The device can measure both aromatic and aliphatic hydrocarbons in gasoline, diesel, and other petroleum products that are heavier than diesel. For accurate measurement of TPH in soil, the developer recommends using its HYDROSCOUT meter to measure the moisture content of samples so that the turbidimeter's TPH concentration reading may be corrected for solvent dilution associated with moisture.

The turbidimeter uses a 585nm light beam to measure the loss of intensity of a light beam that passes through a solution with particles large enough to scatter the light. The turbidimeter is equipped with a built-in temperature sensor.

Results/Conclusions: New Start

Publications: